

WHAT IS CLAIMED IS:

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1. A data transmission method comprising the steps of:

controlling an input port part having a plurality of input ports, and an output window part
10 having a plurality of buffers in accordance with data storage states of the plurality of buffers;

causing data from the plurality of input ports into buffers that have available areas, said buffers being included in the plurality of buffers;
15 and

multiplexing the data read from the buffers in time division multiplexing for transmission.

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2. A transmission apparatus comprising:
an input port part having a plurality of
25 input ports;

an output window part having a plurality of buffers;

a switch part making connections between the plurality of input ports and the plurality of
30 buffers;

a selection control circuit controlling the switch part so that data from the plurality of input ports are stored in buffers that have available areas among the plurality of buffers in
35 accordance with data storage states of the plurality of buffers; and

a time division multiplexing part

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multiplexing the data read from the plurality of buffers in time division multiplexing for transmission.

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3. The transmission apparatus as claimed in claim 2, wherein:

10 the output window part includes a plurality of buffers for each of priorities; and
the selection control circuit controls the switch part to cause the data from the plurality of input ports to be stored in a buffer which is
15 included in the plurality of buffers and has an available area in accordance with storage states of the plurality of buffers for each of the priorities.

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4. The transmission apparatus as claimed in claim 2, wherein:

the output window part includes a
25 plurality of buffers for each of data types; and
the selection control circuit controls the switch part to cause the data from the plurality of input ports to be stored in a buffer which is included in the plurality of buffers and has an
30 available area in accordance with storage states of the plurality of buffers for each of the data types.

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5. The transmission apparatus as claimed in claim 2, wherein:

the selection control circuit controls the
5 switch part to cause the data from the plurality of
input ports to be stored in a buffer which is
included in the plurality of buffers and has an
available area in accordance with storage states of
the plurality of buffers for each of the priorities
10 and each of the data types.

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30 8. The transmission apparatus as claimed
in claim 2, wherein the output port part comprises a
SONET frame assembly parts which assemble data read
from the plurality of buffers into respective SONET
frames, which are then supplied to the time division
35 multiplexing part.

9. The transmission apparatus as claimed
in claim 2, wherein the output window part comprises
5 simple SONET frame assembly parts which assemble
data read from the plurality of buffers into
respective SONET frames, which are then supplied to
the time division multiplexing part.

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10. The transmission apparatus as claimed
in claim 1, further comprising an 8B/10B conversion
15 part that converts multiplexed data from the time
division multiplexing part into data having an
8B/10B conversion format for transmission.

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11. The transmission apparatus as claimed
in claim 2, further comprising MAC delete/label add
parts that delete MAC addresses from IP packets and
25 add labels corresponding to the plurality of input
ports to IP packets that are the data input to the
input port part.

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12. The transmission apparatus as claimed
in claim 2, further comprising:
label detection parts that detect labels
35 added to a plurality of items of data obtained by
subjecting a received signal to demultiplexing in
the time division multiplexing;

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a plurality of second buffers that store the plurality of items of data;

a second switch part making connections between the plurality of second buffers and the
5 plurality of output ports; and

a second selection control circuit that controls the second switch part so that the plurality of items of data can be output via the output ports dependent on the labels detected.

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